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Short Communication

Caelospermum versus *Coelospermum* in Rubiaceae (Gentianales): their etymologies explained

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Abstract

Caelospermum is the original spelling of the generic name, as it appeared in the protologue, but in literature and online databases, the variant spelling *Coelospermum* is often used. However, the confusion about the spelling is caused by a misinterpretation of the etymology. Here, we demonstrate that the original spelling by Blume should be retained.

Key words: Carl Ludwig Blume, etymology, Greek, Latin, nomenclature, orthography, Rubiaceae

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Caelospermum versus *Coelospermum*

Caelospermum Blume is a genus within the Rubiaceae family that is found in Southeast Asia and Oceania and currently consists of 12 species (POWO 2025). The genus is included in the tribe Morindeae, subfamily Rubioideae (Razafimandimbison and Rydin 2024). The circumscription of the genus has been controversial but a broadly delimited *Caelospermum* can be characterised by the mostly lianescent habit, corolla tubes with narrow longitudinal slits alternating with the lobes, ovaries simple or 2–20(–30)-connate, primarily biloc-ular with biovular locules, later becoming 4-locular by the development of sec-ondary septa, drupaceous fruits, concavo-convex to planoconvex pyrenes with a narrow slit in the lower part, and flattened seeds with a narrow basal wing (Johansson 1988). Razafimandimbison et al. (2009) confirmed Johansson's concept of *Caelospermum* with molecular phylogenetic methods, although en-larging it by treating the Australian genus *Pogonolobus* F.Muell. as a synonym.

The generic name was originally spelled as *Caelospermum* in the protologue (Blume 1826: 994; Fig. 1). The genus was mentioned to be closely related to *Morinda* L. and *Gynochtodes* Blume and a single species (i.e. the type species), *Caelospermum scandens* Blume, was described from Nusa Kambangan island in Indonesia. There was no explanation of the etymology of the generic name, but it seems evident that it is derived from Latin "caelum" (= heaven, sky) and "sperma" (= seed). Although Blume mentioned some characters of the pyrenes (Fig. 1), this etymology did not seem to make sense.

Shortly after, the spelling of the generic name was changed by other taxon-omists. Both de Candolle (1830: 468) and Richard (1834: 209) corrected the

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CAELOSPERMUM, Bl.

Calix urceolatus, integerrimus, deciduus. *Corolla* tubo brevi; limbo patente, quinque-aut quadrifido. *Stamina* 5 l. 4, exserta; *filamenta* fauci inserta; *antherae* longe lineares, incumbentes. *Stylus* discum perforans. *Stigma* exsertum, bifidum. *Drupa* globosa, umbilicata, 4-locularis, loculis 1-pyrenis. *Pyrenae* 1-spermae, chartaceo-arillatae, intus concavae, extus gibbae. *Embryo* albuminosus, erectus.

Genus *Morindae* et *Gynochtodi* proximum, habitu tamen valde diversum.

Frutex scandens, foliis oppositis, umbellis compositis terminalibus.

Figure 1. The original publication of the generic name *Caelospermum* Blume (from Blume 1826).

name to *Coelospermum*, however, without commenting on the reason. Hooker (1873: 119) also used *Coelospermum* but he mentioned *Caelospermum* between brackets. Throughout literature, both spelling variants have been used, although it seems that *Coelospermum* is more prevalent, especially in recent molecular phylogenetic studies (e.g. Razafimandimbison et al. 2008, 2009). The monographer of the genus first used *Coelospermum* (Johansson 1987). In his revision of the genus, however, he used the original spelling *Caelospermum* and listed the name *Coelospermum* in synonymy (Johansson 1988), without explaining why he made this change. Other authors also used both variants in different publications (e.g. Halford and Ford 2004 vs Halford and Ford 2009). Mouly and Fleurot (2021) used the spelling *Coelospermum* but explicitly mentioned *Caelospermum* as an orthographical variant. The origin of the change in spelling is found in the interpretation of the etymology. Subsequent authors interpreted the name as derived from Greek “koilos” (= concave, hollow), not Latin “caelum” (= heaven, sky). Since Blume (1826)’s description included the phrase “Pyrenae ... intus concavae ...”, it was interpreted that Blume meant “hollow-seeded” (IPNI 2025).

Besides in literature, the names are also entered in online databases about nomenclature and taxonomy. The International Plant Names Index (IPNI 2025) lists both *Caelospermum* and *Coelospermum* but both names have two entries

and there is confusion about the correct spelling. In the nomenclatural notes of *Caelospermum* (https://www.ipni.org/n/34272-1), it says to use *Coelospermum*. However, the entry *Caelospermum* (https://www.ipni.org/n/116925-3) remarks that there is an orthographical variant *Coelospermum*. The entry *Coelospermum* (https://www.ipni.org/n/327850-2) has a remark in which IPNI chooses to correct *Caelospermum* to *Coelospermum*. The entry *Coelospermum* (https://www.ipni.org/n/85291-3) says the opposite because the remark says that *Coelospermum* is the orthographical variant. Tropicos (Tropicos.org 2025) is clearer about the spelling: *Coelospermum* (https://www.tropicos.org/name/40037911) is considered to be the orthographical variant of *Caelospermum* (https://www.tropicos.org/name/40034119). The World Flora Online (WFO 2025) lists *Caelospermum* (https://www.worldfloraonline.org/taxon/wfo-4000008840) and several subordinate taxa, but all those names are annotated as unchecked names. The status of *Coelospermum* (https://www.worldfloraonline.org/taxon/wfo-4000005905) and its species are indicated as accepted names. The Plants of the World Online (POWO 2025 only lists *Coelospermum* (https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:327850-2).

The interchangeability of cael- (from "caelum") and coel- (from "koilos") is also noted for other generic names in angiosperms. Hasskarl (1855: 139) published the name *Koilodepas* Hassk. (Euphorbiaceae), which is derived from Greek "koilos" (= concave) and "depas" (= beaker) and refers to the cupulate calyx. He later Latinised the name to *Coelodepas* Hassk. (Hasskarl, 1857). However, Bentham and Hooker (1880: 313) published the name as *Caelodepas* Benth. & Hook.f., with reference to *Coelodepas* Hassk. and *Koilodepas* Hassk. Other examples are *Caelebogyne* J.Sm. / *Coelebogyne* J.Sm., *Caelestina* Cass. / *Coelestina* Cass., *Caelia* G.Don. / *Coelia* Lindl., *Caelocline* Auct. ex Steud. / *Coelocline* A.DC., *Caeloglossum* Steud. / *Coeloglossum* Lindl., and *Caelogyne* Wall. ex Steud. / *Coelogyne* Lindl. (Steudel 1840: 247; IPNI 2025). In almost all cases, the variant coel- is preferred (POWO 2025; WFO 2025). *Caelestium* Yurtseva & Mavrodiev (Polygonaceae) has no variant because the etymology is explicitly stated in the protologue: "… from "caelestis" (= heavenly, divinus)" (Yurtseva and Mavrodiev 2019: 73).

Regarding *Caelospermum*, the correction of Blume's spelling of the name is the result of a misinterpretation of the etymology. *Caelospermum* can indeed be derived from Latin "caelum" but it should be translated as "vault of heaven" (Lewis and Short 1891). In ancient cosmology, the celestial vault is portrayed as a vast solid dome arching above the Earth. The name would then refer to arched pyrenes (Fig. 2), which corresponds well with the characters in the protologue (i.e. "Pyrenae … intus concavae, extus gibbae") and in Johansson (1988)'s revision (i.e. "endocarp … concavo-convex to planoconvex"). The interpretation that the name would be derived from Greek "koilos" is conceivable but not necessarily correct.

In Rubiaceae, the origins of the generic names by Blume are not always obvious (e.g. *Metabolos* Blume; Bremekamp 1952: 30) and Blume never explained their etymologies in the protologues, except for eponyms. We will therefore never be able to definitively ascertain what Blume actually intended. Ultimately, both cael- and coel- can refer to a concave feature, and can therefore be used in that sense. However, their etymologies are different, so they should not be considered as orthographical variants. In that case, the original spelling of the name should be retained (ICN Art. 60.1; Turland 2019). In conclusion, the original spelling *Caelospermum* Blume is correct and should be used.

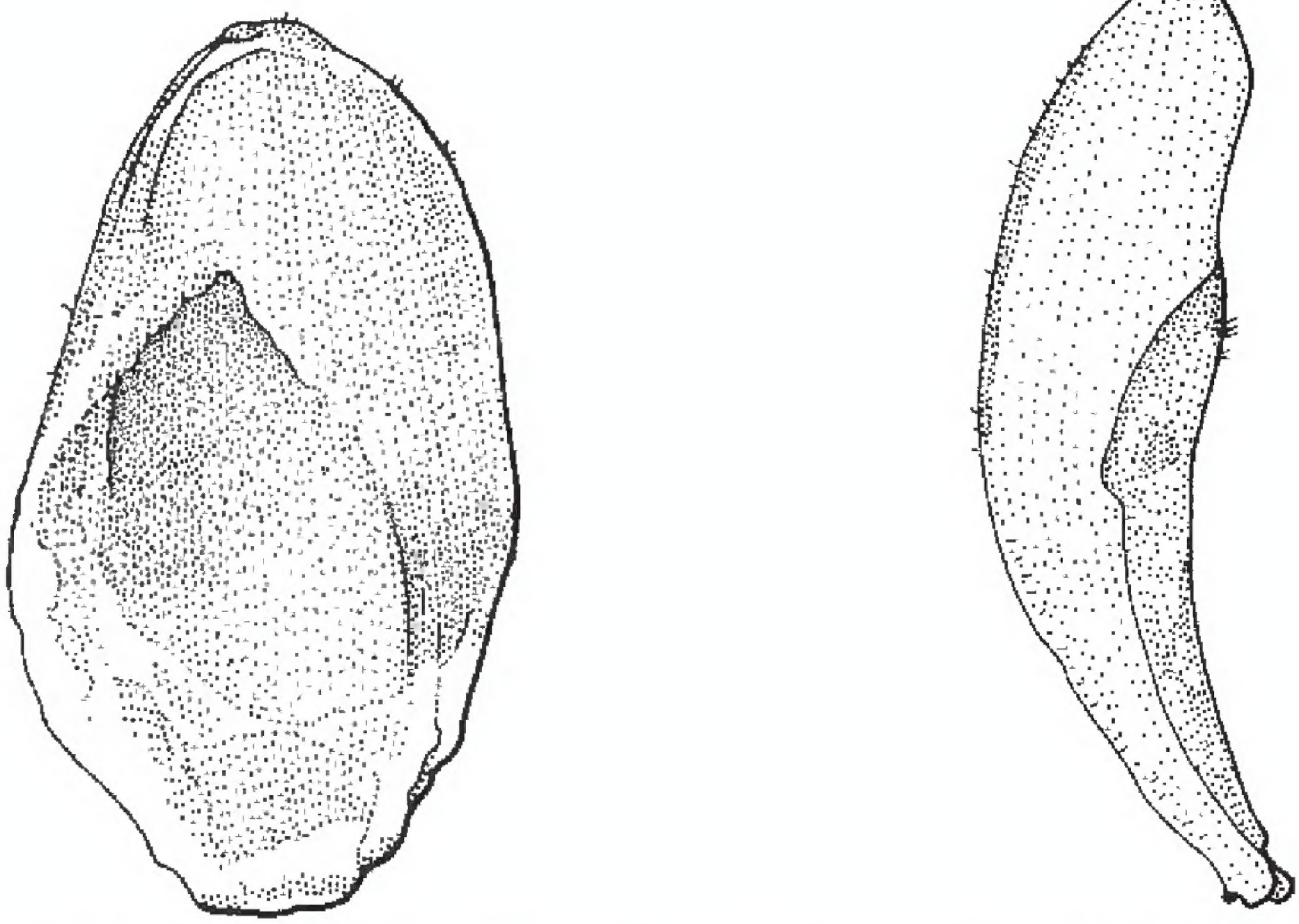

Figure 2. The concave pyrene with a basal marginal groove of *Caelospermum purpureum* Halford & A.J.Ford in adaxial (left) and lateral view (right) (reproduced from Halford and Ford 2009: fig. 1J, K with permission from the editor).

Additional information

Conflict of interest

The authors have declared that no competing interests exist.

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Data availability

All of the data that support the findings of this study are available in the main text.

References

Bentham G, Hooker JD (1880) Ordo CLI. Euphorbiaceae. In: Bentham G, Hooker JD (Eds) Genera plantarum, Vol. 3, Part 1. A. Black, London, 239–340. https://www.biodiversitylibrary.org/page/655760

Blume CL (1826) Rubiaceae. In: Blume CL (Ed.) Bijdragen tot de Flora van Nederlandsch Indie, Vol. 16. Ter Lands Drukkerij, Batavia, 943–1018. https://www.biodiversitylibrary.org/page/429641

Bremekamp CEB (1952) The African species of *Oldenlandia* L. sensu Hiern et K. Schumann. Verhandelingen der Koninklijke Nederlandsche Akademie van Wetenschappen. Afdeeling Natuurkunde, Sectie 2 48: 1–298. https://dwc.knaw.nl/DL/publications/PU00011528.pdf

de Candolle AP (1830) Ordo XCVIII Rubiaceae. In: de Candolle AP (Ed.) Prodromus systematis naturalis regni vegetabilis, Vol. 4. Treuttel et Würtz, Paris, 341–622. https://www.biodiversitylibrary.org/page/152487

Halford DA, Ford JA (2004) *Caelospermum dasylobum* (Rubiaceae), a new species from north-eastern Queensland. Austrobaileya 6(4): 911–915. https://doi.org/10.5962/p.299701

Halford DA, Ford AJ (2009) *Coelospermum purpureum* Halford & A.J.Ford (Rubiaceae), a new species from north-east Queensland. Austrobaileya 8(1): 69–76. https://doi.org/10.5962/p.299781

Hasskarl JC (1855) Brief van den heer Hasskarl. Verslagen en mededeelingen der Koninklijke Akademie van Wetenschappen 4: 134–141. https://www.biodiversitylibrary.org/page/27645965

Hasskarl JC (1857) Genera aliquot nova horti botanici bogoriensis proponit et describit. Flora : the Journal of Infectious Diseases and Clinical Microbiology = Infeksiyon Hastaliklari ve Klinik Mikrobiyoloji Dergisi 40: 529–535. https://www.biodiversitylibrary.org/page/50769

Hooker JD (1873) Ordo LXXXIV. Rubiaceae. In: Bentham G, Hooker JD (Eds) Genera plantarum, Vol. 2, Part 1. Reeve & Co., London, 7–151. https://www.biodiversitylibrary.org/page/657142

IPNI (2025) International Plant Names Index. The Royal Botanic Gardens, Kew, Harvard University Herbaria & Libraries and Australian National Herbarium. http://www.ipni.org [accessed 08.01.2025]

Johansson JT (1987) A new species of *Coelospermum* (Rubiaceae) from New Caledonia. Blumea 32: 321–322. https://repository.naturalis.nl/pub/524472

Johansson JT (1988) Revision of the genus *Caelospermum* Blume (Rubiaceae, Rubioideae, Morindeae). Blumea 33: 265–297. https://repository.naturalis.nl/pub/525997

Lewis CT, Short C (1891) A new Latin dictionary. Harper & Brothers, New York. https://archive.org/details/LewisAndShortANewLatinDictionary

Mouly A, Fleurot D (2021) Une espèce nouvelle menacée de *Coelospermum* Blume (Rubiaceae, Morindeae), endémique du Nord de la Nouvelle-Calédonie et clarification du statut de *C. fragrans* (Montrouz.) Baill. ex Guillaumin. Adansonia 43(25): 269–276. https://doi.org/10.5252/adansonia2021v43a25

POWO (2025) Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. http://www.plantsoftheworldonline.org [accessed 08.01.2025]

Razafimandimbison SG, Rydin C (2024) Phylogeny and classification of the coffee family (Rubiaceae, Gentianales): Overview and outlook. Taxon 73(3): 673–717. https://doi.org/10.1002/tax.13167

Razafimandimbison SG, Rydin C, Bremer B (2008) Evolution and trends in the Psychotrieae alliance (Rubiaceae)–a rarely reported evolutionary change of many-seeded carpels from one-seeded carpels. Molecular Phylogenetics and Evolution 48(1): 207–223. https://doi.org/10.1016/j.ympev.2008.03.034

Razafimandimbison SG, McDowell TD, Halford DA, Bremer B (2009) Molecular phylogenetics and generic assessment in the tribe Morindeae (Rubiaceae-Rubioideae): How to circumscribe *Morinda* L. to be monophyletic? Molecular Phylogenetics and Evolution 52(3): 879–886. https://doi.org/10.1016/j.ympev.2009.04.007

Richard A (1834) Mémoire sur la famille des Rubiacées, contenant la description générale de cette famille et les caractères des genres qui la composent. Mémoires de la Société d'Histoire naturelle de Paris 5: 81–304. https://www.biodiversitylibrary.org/page/4196710

Steudel EG (1840) Nomenclator botanicus, Vol. 1, 2nd edn. J.G. Cottae, Stuttgartiae et Tubingae. https://doi.org/10.5962/bhl.title.655

Tropicos.org (2025) Missouri Botanical Garden. https://tropicos.org [accessed 08.01.2025]

Turland N (2019) The Code Decoded. Advanced Books. https://doi.org/10.3897/ab.e38075

WFO (2025) World Flora Online. http://www.worldfloraonline.org [accessed 08.01.2025]

Yurtseva OV, Mavrodiev EV (2019) *Caelestium* genus novum (Polygonaceae, Polygoneae): Evidence based on the results of molecular phylogenetic analyses of tribe Polygoneae, established with consideration of the secondary structure of the ITS rDNA regions. Novitates Systematicae Plantarum Vascularium 50(50): 47–79. https://doi.org/10.31111/novitates/2019.50.47